AMSAT News Service Weekly Bulletins
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AMSAT NEWS SERVICE
ANS-155

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org

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* Nominating petitions for the election of upcoming open seats on *
* the AMSAT-NA Board of Directors must be received at the AMSAT *
* Office by June 15, 2012. The details of the nominating process *
* are posted on the AMSAT front page news at http://www.amsat.org *
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ANS-155 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 155.01
>From AMSAT HQ SILVER SPRING, MD.
June 3, 2012
To All RADIO AMATEURS
BID: $ANS-155.01

STEM Education Identified as Critical for Continued Rides to Space

The AMSAT Forum at the 2012 Dayton Hamvention featured news of the educational opportunities for AMSAT to contribute to the innovation in attracting and retaining students in science, technology, engineering and mathematics, or STEM, disciplines. Educators have identified STEM programs as a priority in strengthening the Nation's future workforce.

"Education is important to us", said AMSAT Vice-President Educational Relations Mark Hammond N8MH, "It's a part of our mission and vision." Mark noted several key points of AMSAT's support for STEM education:

+ AMSAT is a non-profit volunteer organization which designs, builds and operates experimental satellites and promotes space education.

+ AMSAT works in partnership with government, industry, educational institutions and fellow amateur radio societies.

+ AMSAT encourages technical and scientific innovation, and promotes the training and development of skilled satellite and ground system designers and operators.

As evidenced by this year's acceptance of AMSAT's Project Fox cubesat in the NASA "Educational Launch of NanoSat", the ELaNa program, we were selected on our merit in support of NASA strategic and educational goals. Education is quickly becoming critical for our ride to space.

The recently formed Educational Partnership between AMSAT and ARRL, including NASA is looking for help. We need to develop an education program on the ground starting now. We have resources already available for STEM education in both the K-12 classroom and at the University level while our satellite builders work on the next flight.

For example, the huge collection of telemetry data collected during the recent ARISSat-1 flight is available on our FTP server. This data presents an opportunity for the utilization of satellite data in the classroom (through plotting, graphing, analyzing).

An immediate need is for volunteers to collect and organize existing STEM related lesson plans and ideas from the web, useful to K-12 educators and relevant to amateur radio and satellite. Critical steps such as this will allow ARISSat-1 telemetry data to be used in the classroom. Similar lesson plans and ideas can be used for educational purposes in future satellite missions, such as Fox-1 and Fox-2.

To support this effort specific tasks have been identified and now volunteers are needed to support:

+ Educators: We need lesson plans/ideas related to satellites and amateur radio. ARISSat-1 telemetry data needs to be used in the classroom!
+ Educators: sign up for ARRL Teacher's Institute program!
+ Web content person for AMSAT's education web pages.
  o Also to maintain a calendar of amateur radio youth events.
+ Archivist/publicist of satellite educational activities (photos, stories for AMSAT Journal, press, videos).
+ Mentors and ground station operators (with equipment!) for ARISS contacts.
+ Look for opportunities to engage youth, and document it (photos, articles, AMSAT Journal, press).

To volunteer contact Mark directly at n8mh at amsat.org. The AMSAT-EDU mailing list is the place to exchange education project ideas and to learn how to help with our educational outreach. Information on how to join the AMSAT-EDU list can be found on the AMSAT web at: http://www.amsat.org/mailman/listinfo

AMSAT's vision is to deploy satellite systems with the goal of providing wide area and continuous coverage. AMSAT will continue active participation in human space missions and support a stream of LEO satellites developed in cooperation with the educational community and other amateur satellite groups. This is a path to getting Fox-1 in orbit, and our future Fox-2, ARISSat-2, -3, -?

Again, the key contact is AMSAT Vice-President Educational Relations Mark Hammond N8MH - n8mh at amsat.org.

[ANS thanks Mark Hammond, N8MH for the above information]

AMSAT-NA Board of Directors Nominations

It is time to submit nominations for the upcoming open seats on the AMSAT-NA Board of Directors. A valid nomination requires either one current Member Society, or five current individual members in good standing, to nominate an AMSAT-NA member for the position.

Three directors and two alternate directors have terms expiring this year. The director seats open for election are held by Tom Clark, K3IO; Lou McFadin, W5DID; and Gould Smith, WA4SXM. The alternate director seats open for election are held by Mark Hammond, N8MH and Patrick Stoddard, WD9EWK.

The three nominees receiving the highest number of votes will be seated as regular board members with two year terms. The two nominees receiving the next highest number of votes will be seated as alternate directors for one year.

Written nominations, consisting of names, calls and individual signatures, should be mailed to: AMSAT-NA, 850 Sligo Ave #600, Silver Spring, MD, 20910. They must be received no later than June 15th. No other action is required.

Nominations may also be made by electronic means including e-mail, FAX, or electronic image of a petition. Electronic petitions should be sent to MARTHA@AMSAT.ORG or faxed to 301-608-3410, and also must be received by June 15th. If using any electronic submission, there is a second, verifying step:

> ELECTRONIC SUBMISSIONS WITHOUT THIS SECOND, WRITTEN VERIFICATION ARE NOT VALID UNDER THE EXISTING AMSAT-NA BYLAWS. A verifying traditional written petition MUST be received at the AMSAT-NA office at the above address within 7 days following the close of nominations.

[ANS Thanks AMSAT Secretary Alan Biddle, WA4SCA for the above information]

AMSAT-UK Colloquium 2012 Second Call for Speakers

This is the second call for speakers for the AMSAT-UK International Space Colloquium 2012 which, due to the Olympic & Paralympic Games, will be held the weekend of September 15-16, 2012 at the Holiday Inn, Guildford, GU2 7XZ, United Kingdom.

AMSAT-UK has posted details of the 2012 Colloquium at: http://www.uk.amsat.org/colloquium/twelve

AMSAT-UK invites speakers, to cover topics about micro-satellites, CubeSats, nano-sats, space and associated activities, for this event.

They are also invited to submit papers for subsequent publishing on the AMSAT-UK web site. We normally prefer authors to present talks themselves rather than having someone else give them in the authors' absence. We also welcome "unpresented" papers for the web site.

We appreciate that it is not always possible to give a firm indication of attendance at this stage but expressions of interest would be appreciated.

Submissions should be sent *ONLY* to G4DPZ, via the following routes:

+ e-mail: david dot johnson at blackpepper dot co dot uk
+ Postal address at http://www.qrz.com/db/G4DPZ

AMSAT-UK also invite anyone with requests for Program Topics to submit them as soon as possible to G4DPZ. Invitations for any papers on specific subjects will be included in the future call. Likewise if anyone knows of a good speaker, please send contact and other information to G4DPZ.

AMSAT-UK http://www.uk.amsat.org/

[ANS thanks Dave Johnson, G4DPZ and AMSAT-UK for the above information]

Successful ARISS Contact as Northland Preparatory Academy Calls ISS

On Thursday, May 24, students from Northland Preparatory Academy in Flagstaff, Arizona participated in an Amateur Radio on the International Space Station (ARISS) contact with Joe Acaba, KE5DAR on the ISS.

Approximately 550 students, staff and administrators, as well as Dr. Jeffrey Hall, director of the Lowell Observatory, and the mayor were in attendance. The contact complemented a Science, Technology, Engineering and Math (STEM) curriculum. Video of the event, including Dr. Hall's presentation, has been posted on-line.
See: http://spacescienceteaching.blogspot.com/

The Arizona Daily Sun ran an article on the event which may be found here: http://tinyurl.com/ISS-AZDailySun (azdailysun.com)

[ANS thanks Carol, KB3LKI, and the ARISS Status Report for the Week of May 29, 2012 for the above information]

Multiple CubeSats Autonomously Docking May Build Large Satellites

This week AMSAT-UK, SpaceRef.com, and SSTL have announced plans to develop the 'STRaND-2' mission at the University of Surrey and Surey Satellite Technology Limited (SSTL). This mission will test a novel in-orbit docking system based upon XBOX Kinect technology that could change the way space assets are built, maintained and decommissioned.

STRaND-2 (Surrey Training, Research and Nanosatellite Demonstrator) programme, following on from the smartphone-powered STRaND-1 satel-

lite that is near completion. Similar in design to STRaND-1, the identical twin STRaND-2 satellites will each be a 3 unit Cubesat. Components from the XBOX Kinect games controller to scan the local area and provide the satellites with spatial awareness on all three axes.

SSTL says on their web site, "The STRaND-2 twins will be separated after launch. After the initial phase of system checks, the two satellites will be commanded to perform the docking procedure and, when in close proximity, the Kinect-based docking system will provide the satellites with 3D spatial awareness to align and dock. Other applications for STRaND-2 include the safe removal of space debris and spacecraft maintenance, with a low cost "snap-on" nanosatellite providing backup power, propulsion or additional on-board computing capability."

SSTL Project Lead Shaun Kenyon says, "We were really impressed by what MIT had done flying an autonomous model helicopter that used Kinect and asked ourselves: Why has no-one used this in space? Once you can launch low cost nanosatellites that dock together, the possibilities are endless, like space building blocks."

Dr. Chris Bridges, Surrey Space Centre Project Lead says, "It may seem far-fetched, but our low cost nanosatellites could dock to build large and sophisticated modular structures such as space telescopes. Unlike today's big space missions, these could be reconfigured as mission objectives change, and upgraded in-orbit with the latest available technologies."

Referenced web sites:
http://www.uk.amsat.org/7851
http://www.spaceref.com/news/viewpr.html?pid=37215
http://tinyurl.com/Strand2-News (www.sstl.co.uk)

[ANS thanks AMSAT-UK, SpaceRef.com, and SSTL for the above information]

LVB Tracker Boxes in Stock at the AMSAT Office

Martha says she now has LVB Tracker boxes in stock at the AMSAT Office. The cost is $200 plus $20 shipping.

The AMSAT Store Website is currently down due to technical issues so you can place your order via these routes:

+ Call Martha at the AMSAT Office (301-589-6062) 10:00 AM-6:00 PM EDT
+ Fax - 301-608-3410
+ Mail - AMSAT, 850 Sligo Ave #600, Silver Spring MD 20910

The LVB Tracker is a rotator interface designed to to be used as an interface between tracking software and the Yaesu 4500/5500 series of Az/El rotators.

Here's why you want one:

+ Several physical interface options including RS-232, USB and TCP/IP over 10/100 Ethernet (tested by not implemented)

+ Uses standard EasyComm and Yaesu GS-232 protocols

+ Cross-platform compatibility - Windows, Linux, BSD, Mac

+ Compatible with existing real-time prediction programs such as
  SatPC32 and Nova

+ Open source

+ Integrated firmware programmer for easy installation and upgrade

Watch a demo of the LVB Track Interface with Yaesu G-5500 rotator at:
http://www.youtube.com/watch?v=7ePw-ReMRwA (does not use the AMSAT
enclosure)

[ANS thanks Martha at the AMSAT Ofice for the above information]

13cm Band Rules Expanded to Allow MedRadio Adjacent to Satellites

The ARRL is reporting in a First Report and Order and a Further
Notice of Proposed Rulemaking (ET 08-59) released on May 24, the
FCC decided to expand the Part 95 Personal Radio Service rules to
allow medical devices to operate on a secondary basis in the 2360-
2400 MHz band. International amateur satellite operations are allo-
cated between 2400-2450 MHz, adjacent to the new devices.

The new allocation is Medical Body Area Networks (MBAN) which pro-
vide a way for health care facilities to monitor their patients via
wireless networks. Because use of these frequencies will be on a
secondary basis, MBAN stations will not be allowed to cause inter-
ference to, and must accept interference from, primary services,
including radio amateurs who operate on a terrestrial primary basis
in the 2390-2395 MHz and 2395-2400 MHz bands.

The ARRL has posted their full analysis and report at:
http://tinyurl.com/13cm-Medical-Allocation (arrl.org)

[ANS thanks the ARRL for the above information]

Funding Availability Key to Final Acceptance in QB50 Project

The QB50 Project, funded by the European Commission, plans to orbit
50 CubeSats separated by a few hundred kilometers and carrying iden-
tical sensors to study Earth's lower layers of the thermosphere/ion-
osphere and study effects of satellite re-entry. All 50 CubeSats will
be launched out of Murmansk, Russia, into a circular orbit with 79
degree inclination at 320 km altitude in the first half of 2015.
Full details are published at: https://www.qb50.eu.

The project is run by an international consortium under the leader-
ship of the von Karman Institute (VKI) near Brussels. The Call for
Proposals for CubeSats carrying the standard sensor package which
may also include additional experiments closed on April 30, 2012.
VKI reports the response to this Call resulted in proposals for 70
CubeSats from 38 countries in the following categories:

+ 53 standard 2U CubeSats for atmospheric science.

+ 7 proposals for In-Orbit-Demonstration (IOD) 3U CubeSats for test-

ing new technologies or minitaurised science sensors which also include the standard science sensors.

+ 5 proposals for IOD 3U CubeSats which do not include the standard science sensors.

+ 1 proposal for IOD 2U CubeSats which also include the standard science sensors.

+ 4 proposals for IOD 2U CubeSats which do not include the standard science sensors.

+ 2 proposals for interdisciplinary science.

VKI, with the help of external reviewers, is now in the process of evaluating the 70 proposals, aimed towards a selection of 50 CubeSats to be flown on QB50.

VKI wrote in the 31 May 2012 issue of the QB50 Newsletter, "The availability of funding for developing a CubeSat will be a critical issue in the selection process. At this stage, it is not known which proposals will actually be able to obtain the required funding. The final selection of 50 CubeSats can only be made once the availability of funding is established. CubeSat teams who submitted a proposal should now contact their national funding agencies and/or industrial sponsors to obtain the funding. The process of securing this funding should be completed by 1 October 2012 with the signing of a 'Contractual Agreement' between the university and VKI."

In the coming months, VKI will support the CubeSat teams in their efforts to obtain the funding, e.g. by sending a 'Letter of Support'. It is not expected that all 70 CubeSat teams will be able to sign the Contractual Agreement by 1 October, therefore, the de facto down-selection from 70 to 50 CubeSats will be made based on securing the funding by each team.

In some cases, funding agencies will only be able to provide a part of the funding. Teams who only received approval for part of the funding should consider the possibility of collaboration with another team that also received only a part of the requested funding.

[ANS thanks The QB50 Project and von Karman Institute for the above information]

AMSAT at Ham-Com, 8-9 June, Plano, TX, Special Event K5P

AMSAT will have an AMSAT Booth, Satellite Demonstrations, and two Satellite Talks at Ham-Com in Plano, TX, on 8-9 June 2012. The talks will be given by Douglas Quagliana, KA2UPW/5, and Keith Pugh, W5IU.

This year there will be a Special Event activity (sponsored by the Plano Amateur Radio Klub) associated with Ham-Com and the call sign will be K5P. AMSAT's Satellite Demonstrations will be conducted using K5P as part of the Special Event. Additional details about Ham-Com are available at: http://www.hamcom.org/

If you attend Ham-Com, drop by and see us. In addition, if you can spare an hour or two, we could use the help in the AMSAT Booth and doing the Demos.

We plan to work as many of the following Satellite Passes as possible:

Ham-Com 2012 Demos

Grid EM13pb

Min El = 10 deg

Time Zone UTC

WinAos QTH: -96.7/33.1 T#: 12577 Sat.: 7 [Standard]

Day	Object	AOS (U)	LOS	Period	maxEl	AZ
08.06.2012	VO-52	13:53	14:00	07	39	031 - 172
08.06.2012	VO-52	15:30	15:34	04	14	319 - 259
08.06.2012	HO-68	15:41	15:54	13	48	029 - 176
08.06.2012	HO-68	17:29	17:40	11	28	350 - 238
08.06.2012	FO-29	18:43	18:56	13	64	020 - 184
08.06.2012	AO-27	18:44	18:51	07	22	118 - 018
08.06.2012	SO-50	20:08	20:15	07	19	008 - 100
08.06.2012	AO-27	20:23	20:32	09	35	196 - 331
08.06.2012	FO-29	20:30	20:38	08	18	332 - 248
08.06.2012	SO-50	21:48	21:56	08	43	317 - 174

WinAos QTH: -96.7/33.1 T#: 12578 Sat.: 7 [Standard]

Day	Object	AOS (U)	LOS	Period	maxEl	AZ
09.06.2012	VO-52	14:10	14:17	07	66	019 - 184
09.06.2012	AO-07	14:11	14:19	08	16	336 - 268
09.06.2012	HO-68	15:24	15:36	12	35	034 - 164
09.06.2012	HO-68	17:12	17:24	12	36	355 - 227
09.06.2012	FO-29	17:50	17:59	09	23	048 - 148
09.06.2012	AO-27	18:18	18:22	04	12	084 - 036
09.06.2012	FO-29	19:34	19:46	12	51	359 - 213
09.06.2012	AO-27	19:54	20:04	10	66	174 - 343
09.06.2012	SO-50	20:36	20:44	08	47	345 - 134
09.06.2012	AO-07	21:21	21:30	09	17	091 - 015

Come see us or talk to the AMSAT Team!

[ANS thanks Keith Pugh, W5IU for the above information]

Satellite Shorts From All Over

+ Venus will pass in front of the sun on 6 June 2012. Bob Bruninga, WB4APR will be in Japan to observe the event. He has created a web page, "The 2012 Transit of Venus using HAM Radio" including a list of selected calling frequencies, see: http://aprs.org/VenusTransit2012.html

+ The 2012 AMSAT Annual Meeting and Symposium will be held at the Holiday Inn, Orlando (Florida) Airport on October 26-28, 2012. The First Call for Papers has been issued. The Symposium Team requests a tentative title of your presentation as soon as possible, with final copy to be submitted by October 1 for inclusion in the printed proceedings. Abstracts and papers should be sent to Dan Schultz, N8FGV, at n8fgv@amsat.org. Watch for the latest 2012 Symposium information to be posted on the AMSAT web at:

http://www.amsat.org/amsat-new/symposium/2012/index.php

+ The UK Space Agency has released a YouTube video celebrating the UK's 50 years in space: http://tinyurl.com/UK-50-In-Space (Southgate)

+ Eric Knaps, ON4HF built an arrow antenna for working the FM satellites. Photos posted at: https://picasaweb.google.com/ON4HF.Eric/PortableSatAntenna

+ ESA astronaut Andre Kuipers published a photo gallery during the arrival and docking at the ISS of the SpaceX Dragon resupply ship. See: http://tinyurl.com/Dragon-Photo-Gallery (UniverseToday.com)

+ A 50 minute interview with Neil Armstrong made this year is now available. The video is split into 4 parts which can be seen at: http://thebottomline.cpaaustralia.com.au/ (Trevor, M5AKA)

+ The May 20 annular eclipse was photographed by NASA's Lunar Reconnaissance Orbiter as it turned its camera to look back home. Images of the Earth with the Moon's fuzzy shadow are posted on-line at: http://tinyurl.com/LROC-Eclipse (UniverseToday.com) For eclipse photos from Earth check out: http://www.universetoday.com/95469/annular-eclipse-redux/

+ There are two new Hamvention 2012 music videos on YouTube produced by Joe Eisenberg, K0NEB. One is called Hamvention 2012 "Band On The Run" and the other is titled Hamvention 2012 "Gimme Dat Ding." To find them just put the word joehusker into the search YouTube search line.

[ANS thanks everyone for the above information]

/EX

In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information. And with that please keep in mind the tidal forces of the Moon (and the Sun) don't only act on the oceans, they act on the land as well. If you stand on the equator, the land beneath you will go up and down by as much as 21 inches (55 centimeters) over the course of a day.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM